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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ronald D. Javor

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EXAMINER

LU, ZHIYU

ART UNIT

PAPER NUMBER

2618

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/607,796	Applicant(s) JAVOR ET AL.	
	Examiner Zhiyu Lu	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 6-14 and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon (US2003/0104796) in view of Butternowsky et al. (US Patent#6088407) and Ishizaki et al. (US Patent#5274388).

Regarding claim 1, Yoon teaches an apparatus, comprising:

a first antenna (ANT1 of Fig. 3) coupled to a first receiver (Rx#1 of Fig. 3), wherein the first receiver comprises a first low noise amplifier (LNA, 316A of Fig. 3) having an input terminal coupled to the first antenna and an output terminal coupled to a first mixer (318A of Fig. 3);

a second antenna (ANT2 of Fig. 3) coupled to a second receiver (Rx#2 of Fig. 3), wherein the second receiver comprises a second low noise amplifier (LNA, 316B of Fig. 3)

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having an input terminal coupled to the second antenna and an output terminal coupled to a second mixer (318B of Fig. 3); and

wherein the first antenna and the second antenna are part of a wireless communication device, wherein the first antenna is configured as a transmit and receive antenna, and wherein the second antenna is configured as a receive only antenna (Fig. 3, paragraph 0011).

But, Yoon does not expressly disclose the second antenna having a radiation pattern different than a radiation pattern of the first antenna; and a voltage controlled oscillator coupled to the first mixer and to the second mixer.

However, it is known to one of ordinary skill in the art that an electronic oscillator is needed to work with the mixers/multipliers of Yoon.

Butternowsky et al. teach coupling a voltage controlled oscillator (VCO, 250 of Fig. 2) to the first mixer and to the second mixer (230s of Fig. 2).

Ishizaki et al. teach an apparatus with a second antenna having a radiation pattern different than a radiation pattern of a first antenna (1-2 of Fig. 1, column 3 lines 47-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using two different types of antenna taught by Ishizaki et al. into the apparatus of Butternowsky et al. with VCO reception configuration taught by Butternowsky et al., in order to prevent receiving strength from being degraded due to change in application environment.

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Regarding claim 10, Yoon, Butternowsky et al., and Ishizaki et al. teach a system comprising: a wireless wide area network device (abstract of Ishizaki et al.) comprising limitations as explained in response to claim 1 above.

Regarding claim 14, Yoon, Butternowsky et al., and Ishizaki et al. teach a method as explained in response to claim 1 above.

Regarding claim 6, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1. Yoon teaches the first receiver is a direct conversion receiver and wherein the second receiver is a direct conversion receiver (Receivers of Fig. 3).

Regarding claim 7, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1. Butternowsky et al. teach a baseband processor coupled to the first receiver and the second receiver (column 2 lines 52-55, column 3 lines 36-41).

Regarding claim 8, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1. Yoon, Butternowsky et al., and Ishizaki et al. teach the first antenna receives a first radio frequency signal and the second antenna receives a second radio frequency signal that is not correlated to the first signal and further comprising a baseband logic circuit adapted to process the first radio frequency signal and the second radio frequency signal to provide interference detection and cancellation (column 2 lines 27-42, column 6 lines 36-59 of Butternowsky et al.).

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Regarding claim 9, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1. Butternowsky et al. teach the first receiver is adapted to down convert a first signal from the first antenna and wherein the second receiver is adapted to down convert a second signal from the second antenna (column 3 lines 3-11).

Regarding claim 11, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1. Ishizaki et al. teach the wireless wide area network device is a cellular telephone (column 1 lines 6-7).

Regarding claim 16, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 14.

Ishizaki et al. teach receiving the first signal from an omni-directional antenna having a non-directive radiation pattern (1 of Fig. 1).

Regarding claims 3 and 17, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitations of claims 1 and 16.

Ishizaki et al. teach the first antenna is a whip antenna (1 of Fig. 1).

3. Claims 2, 4, 12-13 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon (US2003/0104796) in view of Butternowsky et al. (US Patent#6088407), Ishizaki et al. (US Patent#5274388), and Ying (US Patent#6697020).

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Regarding claims 2 and 13, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitations of claims 1 and 10.

But, Yoon, Butternowsky et al., and Ishizaki et al. do not expressly disclose the first antenna is an omni-directional antenna having a non-directive radiation pattern and wherein the second antenna is a directive antenna having a directive radiation pattern.

Ying teaches a portable device having a first antenna is an omni-directional antenna (Cellular, 21 of Fig. 3) having a non-directive radiation pattern and wherein a second antenna (GPS, 16 of Fig. 3) is a directive antenna having a directive radiation pattern (column 2 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having an omni-directional antenna and a directive antenna taught by Ying into the modified apparatus and system of Yoon, Butternowsky et al., and Ishizaki et al., in order to provide antennas in different characteristics with minimizing surface space usage.

Regarding claim 4, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 1.

But, Yoon, Butternowsky et al., and Ishizaki et al. do not expressly disclose the second antenna is a microstrip patch antenna.

Ying teaches a portable device having its second antenna being a microstrip patch antenna (column 2 lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having second antenna being a microstrip patch antenna taught by Ying into the modified apparatus of Yoon, Butternowsky et al., and Ishizaki et al., in order to provide low-cost antenna with minimizing surface space usage.

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Regarding claim 12, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 11.

But, Yoon, Butternowsky et al., and Ishizaki et al. do not expressly disclose at least a portion of the first antenna is external to a housing of the cellular telephone and wherein the second antenna is internal to the housing of the cellular telephone.

Ying teaches at least a portion of the first antenna is external to a housing of the cellular telephone (column 1 lines 30-37) and wherein the second antenna is internal to the housing of the cellular telephone (column 4 lines 19-22), where the two are obvious to one of ordinary skill in the art to combine into one embodiment.

There, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate hiding second antenna in the housing taught by Ying and having an external traditional antenna as the first antenna taught by Ying into the modified system of Yoon, Butternowsky et al., and Ishizaki et al., in order provide antennas with minimizing surface space usage.

Regarding claim 18, Yoon, Butternowsky et al., and Ishizaki et al. teach the limitation of claim 14.

But, Yoon, Butternowsky et al., and Ishizaki et al. do not expressly disclose receiving the second signal from a directive antenna having a directive radiation pattern.

Ying teaches a method of receiving a second signal from a directive antenna having a directive radiation pattern (column 2 lines 9-27).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using directive antenna taught by Ying into the modified method of Yoon, Butternowsky et al., and Ishizaki et al., in order to provide directive antenna characteristic with minimizing surface space usage.

Regarding claim 19, Yoon, Butternowsky et al., Ishizaki et al., and Ying teach the limitation of claim 18.

Ying teaches the directive antenna is a microstrip patch antenna (column 2 lines 28-32).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhiyu Lu whose telephone number is (571) 272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu
August 28, 2007


NAY MAUNG
SUPERVISORY PATENT EXAMINER